R. C. Baumiller discusses this, and a companion paper by Margery Shaw as well, which, unfortunately, does not appear.

The volume concludes with the abstracts of papers contributed at the same meeting. One wonders if these 65 pages were worth the price of inclusion.

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Human Culture: A Moment in Evolution. By T. DOBZHANSKY and E. BOESIGER; edited and completed by B. WALLACE. New York: Columbia University Press, 1983. Pp. 175. $18.50.

The basis of most of this book rests on lectures prepared by Theodosius Dobzhansky for a course entitled "Problems in Organic and Human Evolution" presented at the College de France in 1974. Dobzhansky planned to use the lectures to write the book as a joint effort with Ernest Boesiger. Unfortunately, they both died, and Mrs. Boesiger asked Bruce Wallace to complete the unfinished manuscript. As a result, four of the chapters are by Dobzhansky, two are by Boesiger, and two are by Wallace. Wallace tried to complete the manuscript in the spirit of the deceased authors. This put Wallace in the uncomfortable position of attempting to save some of the last thoughts of these two scientists regardless of his own persuasions. To maintain his integrity, Wallace outlined his major disagreements in the preface.

Many of the subjects in this book do not lend themselves to a rigorous scientific treatment. Instead, it is largely composed of ruminations of older, distinguished scientists with a philosophic bent (Is there any other kind?). Villains are part of the reason for writing the book; for example: Christian Fundamentalists opposed to evolution, a scientist named Grasse who has bizarre ideas about evolution, and Cuvier, whose vanity and preconceived ideas led him to rewrite history. Most of us will smile at depicting antievolutionists as "ignorant persons or fanatics" (p. 61). The periodic attacks on Grasse's ideas are better argued because the authors take him seriously. However, the intensity of the attacks will be curious to most of the audience in the United States because Grasse is not well known here. The depiction of Cuvier is simply a historic fact.

Wallace wrote the preface, introduction, and chapters one and eight to help tie the book together. As might be expected, these are the best-written parts of the book not only in terms of style, but also in terms of science.

Chapter two deals with natural selection and "internal teleology." Why Dobzhansky would have selected a word with such negative connotations as "teleology" to describe the evolution of useful organs is not explained. But then his reference to vertebrate eyes as "sublimely perfect organs" (p. 27) is not very scientific either.

Chapter three is Dobzhansky's critique of non-Darwinian theories of evolution. The older ideas are interesting from a historical standpoint, but, appropriately, most of the chapter discusses the more current topic of neutral mutations.

Many of the ideas expressed by Dobzhansky in chapter four, "The Unique Position of the Human Species in Evolution," would have been more appropriately placed in *Psychology Today*. The vague concepts of "self-awareness" and "death awareness" are attributed uniquely to humans for no clear reason. "Ethics" is treated similarly (p. 70): "The animal ancestors of the human species had no ethics." A curious and unsupportable statement is made on page 75: "Some biologists and some cyberneticists have emphasized the growth

of the amount of information contained particularly in genetic materials. An application of this criterion may perhaps place man at the apex of the living world, but the measurements are, at the moment, somewhat ambiguous." In terms of science, this is the weakest chapter in the book.

Boesiger's chapter five, "Biological and Cultural Evolution of Man," is a thoughtful comparison of these two analogous evolutionary processes. The chapter includes a historic survey of evolutionary thought. The interesting point is made that there have been two opposed views of the world: one, the changing (evolving) world of the Buddhists, Taoists, and pre-Socratic Greeks; the other, the static world of the Brahmans, Hindus, Socratic Greeks, and Christians. While Boesiger does not say so, science has seemingly settled the intellectual argument by throwing its weight completely on the side of evolution. However, the historic controversy will not end because it has its roots in personalities rather than in reason and evidence. Evolution will predominate in a scientifically literate society, but every child is born potentially a Fundamentalist.

Boesiger becomes more speculative in chapter six, "The Biological Bases and Evolutionary Functions of Esthetic Sensations." This is a most interesting chapter because it deals with a topic so far out of the mainstream of evolutionary thought. It is also not very scientific with the author's biases given in a variety of sometimes humorous pronouncements; for example: (p. 134) "faced with cultural degradation, art, by becoming even more than before a means of humanistic communication, can mitigate the alienation and disequilibrium of modern man," and (p. 135) "that the galleries of Tokyo, Milan, Paris, London, and New York should promote [the] same types of painting is a dangerous antievolutionary and antihumanistic aberration."

Dobzhansky's chapter seven, "Human Equality and Genetic Diversity," is his strongest chapter. The influences of environment and heredity on IQ and achievement are compared. Included in this are the unintentional cultural experiments of the caste system in India and, more recently, the elimination of the aristocracy in France, Russia, and China. Aristocracy and meritocracy are related to the myth of hereditary superiority.

While a relatively few persons will be interested in reading this book as a last glimpse at the thoughts of the deceased authors, the book is intrinsically valuable as a contribution to the history of evolutionary thought and its relationship to society. In this latter regard, *Human Culture: A Moment in Evolution* can be recommended to almost everyone.

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Chromosome Mutation and Neoplasia. Edited by J. GERMAN. New York: Alan R. Liss, Inc., 1983. Pp. 486. $96.00.

Although this book "is for biologists generally" (German, from the introduction), the entire first half is significantly devoted to clinical descriptions of the diseases (chromosome-breakage syndromes) that are to be the main subject matter. These descriptions are thorough to the point of tedium and belie the stated intent of the introduction. Most of the remaining chapters of the first section of short summaries are of cytogenetic (or related) findings in these diseases, but offer nothing new to the literature. The exceptions are Heddle et al. and Cleaver's chapters, which contain useful information and tables. In Cleaver's case, a coherent and integrating hypothesis of the problems of DNA repair and synthesis in these diseases is presented, but much of the data in support are not given or are unpublished.